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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/538,120  | 06/07/2005  | Michael S Griffith   | 540-566             | 1990             |
| 23117 7590 09/29/2009<br>NIXON & VANDERHYE, PC<br>901 NORTH GLEBE ROAD, 11TH FLOOR<br>ARLINGTON, VA 22203 |             |                      |                     |                  |
| EXAMINER  |             |                      |                     |                  |
| SHAFFER, RICKY D  |             |                      |                     |                  |
| ART UNIT  |             | PAPER NUMBER         |                     |                  |
| 2872  |             |                      |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/538,120

**Applicant(s)**

GRIFFITH ET AL.

**Examiner**

Ricky D. Shafer

**Art Unit**

2872

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-5, 7, 8, 10, 11, 14-18, 20, 21, 25 and 28-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11, 31 and 32 is/are allowed.
- 6) ☒ Claim(s) 2-4, 7, 8, 14-17, 20, 21, 25 and 28-30 is/are rejected.
- 7) ☒ Claim(s) 5, 10 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Final Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. The indicated allowability of claim 19 is withdrawn in view of further consideration of the reference(s) to Guzman et al ('373) and Merz et al ('688). Rejections based on the cited reference(s) follow.
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2-4, 7, 8, 14-17, 20, 21, 25 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guzman et al ('373) in view of Merz et al ('688).

Guzman et al discloses a deformable apparatus comprising a deformable mirror (105), a deformable mirror holder comprising a rigid mounting body (150) having a central aperture in which the deformable mirror is received (see Fig. 1), a flexible structure (110) extending across the aperture to the mirror, and a deformation device (160) for controllably deforming the mirror, the deformation device acting on the mirror other than through the flexible structure, the flexible structure having an end (the unlabeled flexure portions positioned between elements 110 and 105, shown in Fig. 1) shaped to provide a supporting surface for supporting the mirror, and a flexible portion (110, 157, 159) linking the supporting surface to the body and permitting movement of an edge of the mirror relative to the body when the mirror is deformed by the deformation device, wherein the flexible structure (110) comprises a plurality of flexible beams (the unlabeled flexure portions positioned between elements 110 and 105, shown in Fig. 1), each

said beam having said supporting surface (the surface which directly contacts the mirror) and said flexible portion (the portion of the flexure between element 110 and the surface which directly contacts the mirror, as shown in see Fig. 1), wherein the flexible portions permits rotation of the edge of the mirror and displacement of the edge of the mirror axially (see column 3, line 63 to column 4, line 13), wherein the mounting body is a unitary structure (see column 3, lines 63-67), wherein the ends of the flexible beams are co-joined to form a unitary structure shaped to provide said supporting surface (see Fig. 1); wherein the ends of the flexible structure lie in the plane of the body of the holder such that the mirror is received within the body (see Fig. 1) and wherein at least one beam is generally L-shaped such that one leg of the L-shape provides the flexible portion and the other leg of the L-shape provides the supporting surface of the end of the beam (see Fig. 1), note Fig. 1 along with the associated description thereof, except for explicitly stating that the plurality of flexible beams are arranged around the entire periphery of the aperture.

Merz et al teaches is well known to use flexible structures having a plurality of flexible beams (3) arranged around an entire periphery of an aperture in the same field of endeavor for purpose of holding and/or mounting a mirror (1). Note figures 1 and 2 along with the associated description thereof.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the flexible structure of Guzman et al to include a plurality of flexible beams in such manner that the flexible beams are arranged around the entire periphery of the aperture, as taught by Merz et al, in order to increase the flexibility of said deformable mirror apparatus to correct for wavefront aberrations.

As to the limitations of claims 7, 8, 20 and 21, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the size of the widths of the beams of Guzman et al in view of Merz et al to be larger than the separation between beams in order to increase the degree of flexibility desired, since such a modification would have involved only a mere change in the size of the component. Scaling up or down of an element which merely requires a change in size is generally recognized as being within the level of ordinary skill in the art. Note: In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976) and In re Rose, 105, USPQ 237 (CCPA 1955)

4. Claims 5, 10 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. Claims 11, 31 and 32 are allowed.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ricky D. Shafer whose telephone number is (571) 272-2320. The examiner can normally be reached on Mon-Fri. 11:00 to 7:30.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RDS

September 28, 2009

/Ricky D. Shafer/  
Primary Examiner  
Art Unit 2872